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ABSTRACT

To determine the usefulness of two commonly taught phonics rules concerning the pronounciation of two-syllable words, a study analyzed more than 138,000 words in the "New Grolier Webster International Dictionary of the English Language." The rules state that (1) a vowel is short when the only vowel in a syllable is not the last letter in the syllable (the closed syllable rule), and (2) a vowel stands for the long sound when the only vowel letter is at the end of a syllable (the open syllable rule). Results indicated that 44.9% of the open syllable words and 56% of the closed syllable words could be pronounced correctly. Findings suggested that the utility of the two rules decreases as the list becomes larger and more removed from early elementary vocabulary lists. Based on the notion that a word cannot be correctly pronounced if one syllable in a word cannot be correctly pronounced, analysis of two-syllable words indicated utility of the two rules to be approximately 25%. Evaluation using the five categories of pronounciation revealed similar results. Since it is unlikely that children in early first grade will divide words into syllables with perfect accuracy, as the evaluation presumed, the utility of the two phonics rules is probably considerably lower than the percentages reported, and the rules should not be taught to children. (JD)

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THE UTILITY OF THE "VOWELS IN OPEN SYLLABLE" AND "VOWELS IN CLOSED SYLLABLE" PHONIC RULES WHEN PRONOUNCING TWO-SYLLABLE WORDS

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For many years teachers generally have recognized that teaching the phonics of the vowels was much more difficult, and less rewarding, than the phonics of the consonants. Previous phonics utility research indicates lower utility for rules dealing with the phonics of vowels. The apparent teacher response to this is to put more effort and time into teaching the phonics of the vowels. The children's response usually is lowered enthusiasm for reading.

This article reports research which may provoke a different response from teachers than devoting more time and effort. The research deals with the usefulness of two traditionally taught phonics rules in the correct pronunciation of two-syllable words, herein named (1) the vowel in a closed-syllable rule, and (2) the vowel in an open-syllable rule.

The usual wording of these is as follows:

1. Vowel in a Closed Syllable Rule: When a vowel is in the middle of a syllable, the vowel is short.[1]

2. Vowel in an Open Syllable Rule: When the only vowel letter is at the end of a syllable, the letter stands for the long sound.[1]

These rules are widely used and were adapted from similar rules dealing with one-syllable words. After some progress in the study, it was noted that some words caused problems in applying the rules. It was, therefore, decided to reword the first rule listed above to read:

1. Vowel in a Closed Syllable Rule. When the only vowel in a syllable is not the last letter in the syllable, the short sound of that vowel is pronounced.

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[1] This is Clymer's terminology, which the other researchers also used.

This rewording helps settle the issue of what to do with (a) words such as strip, in which the vowel is not in the middle, but to which the rule applies; (b) words such as tea, air, etc. which do have a vowel in the middle, but to which the rule does not apply; and (c) syllables like the ut in utmost, in which there is no real middle, but to which the rule does apply.

For this study, a closed syllable was considered to be any syllable that ended with a consonant letter, and an open syllable any one that ended with a vowel letter.[1]

There has been no research done that I can find on the utility of these rules as modified to apply to syllables. However, there has been research done on them in their original form for dealing with one-syllable words.

Clymer, using a list of some 2,600 words taken from grades one through four reading vocabularies, found 447 closed one-syllable words, 119, or 73% of which correctly could be pronounced using the rule for closed syllables. This is among the higher percentages for phonic rules of wide application (Clymer 1961). In a similar study by Clymer, he used a word list of some 2,600 lower grade vocabulary words, and found 651 such one-syllable words, 249, or 62% of which correctly could be pronounced using that rule (Clymer 1963).

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[1]The IRA Dictionary of Reading and Related Terms (1981) defines an open syllable as one which ends with a vowel sound. However, that requires a knowledge of the pronunciation to determine an open syllable. It seems highly unlikely that one would be trying to determine open syllables to find out how to pronounce the vowel in it if one already knew how to pronounce it.

Bailey, in research patterned after Clymer's, used a list of 5,773 words from the grade one through six vocabularies of 8 basic reading series. She found 1,021 such one-syllable words, 790 or 71% of which correctly could be pronounced using the rule for closed one-syllable words (Bailey 1967).

Emans, in a study also patterned after Clymer's, used a 10% random sample of all the words grade five and above in the Thorndike-Lorge Teacher's Word Book of 30,000 Words. In the 1,944 words in the sample, he found 139 such closed one-syllable words, 38 or 73% of which correctly could be pronounced using the rule (Emans 1967).

Dzama also using Clymer's pattern, used a list of 2,025 words assembled from a random sample of 225 first graders' acquired sight vocabulary. She found 420 such closed one-syllable words, 118 or 71% of which correctly could be pronounced using the rule.

Bieri, also using Clymer's research model, used a list of 1,495 words from Feinstein's Programmed College Vocabulary 3600. While he did not report the number of closed one-syllable words, other than "more than 20," he indicated 80% of them correctly could be pronounced using the rule.

Greif, in an unpublished research report, used the modified form of the rule for closed syllables. He used the complete 138,000 plus word entry list from the Grolier New Websters International Dictionary of the English Language. He found 1,835 such closed one-syllable words, 1,260, or 68.6% of which correctly could be pronounced using the rule.

The above information is summarized for you in tabular form, in Table I which follows.

Table I

Utility of Vowel in Closed Syllable Words Rule, as Obtained by Previous Researchers Listed

	Total # of Such Words in Sample	# Conforming to Rule	Percent of Utility
Clymer (1961)	447	119	73%
Clymer (1963)	651	249	62%
Bailey (1967)	1021	790	71%
Emans (1967)	139	38	73%
Dzama (1975)	420	118	71%
Bieri (1977)[1]			80%
Greif[2]	1835	1260	68.6%

[1]Bieri reported only percent of utility.

[2]Greif used a modified rule which improved the utility. With the rule worded as Clymer used it, he obtained 3,923 words, and a utility of 39.3%

Previous research also was done by all of the above persons on the utility of the one word open syllable. They used the same word lists as already described. The results are in Table II, below.

Table II

Utility of Vowel in Open Syllable Words Rule, as Found by Previous Researchers Listed

	Total # of Such Words in Sample	# Conforming to Rule	Percent of Utility
Clymer (1961)	27	21	78%
Clymer (1963)	31	23	74%
Bailey (1967)	38	29	76%
Emans (1967)	3	1	33%
Dzama (1975)	21	16	76%
Bieri (1977)[1]			0%
Greif[2]	57	25	43.8%

For the new study reported here, the list used was the 138,000 plus entries in the New Grolier Webster International Dictionary of the English Language.

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[1]Bieri reported only percent of utility.

[2]Greif did not include 15 words which were all of the one syllable words ending in the vowel "y," in all of which it was pronounced long i. He felt these should be a separate category with a separate rule of 100% utility, or simply memorized. If he had included them, his numbers would have been 72, 40, and 55.5%

Upon examining the two syllable words in the list, it became apparent there were five different categories, as follows:

Category #1. Two syllable words, one syllable having the letter "y" as the only vowel, the other being a simple open or closed syllable, such as in the words am/ply and ty/phus, etc.

Category #2. Two syllable words in which one syllable contains adjacent vowels, the other being a simple open or closed syllable, such as in the words, con/tain and tweet/er.

Category #3. Two syllable words in which one syllable contains a vowel plus a final e, such as the words, pole/ax and pan/cake, etc.

Category #4. Two syllable words in which both syllables are simple open and/or closed syllables, such as the words, so/lo, po/lar, al/so, and but/ton, etc.

Category #5. Two syllable words in which both syllables are some combination of (a) vowel plus final e, (b) adjacent vowels, or (c) the letter "y" as the vowel, such as in the words home/room, room/mate, fool/proof, some/time, come/ly, ly/sine, cool/ly, by/road, etc.

Each two syllable word in the dictionary was listed under one of these five categories, and the information concerning the possibility of obtaining its correct pronunciation as shown in the dictionary using the above two rules, was recorded and then rechecked.

In reporting the results, several abbreviations are used and they, with their meanings, are:

VV	meaning adjacent vowels, such as the ea in the word, heat.
VCE or VCCE	a vowel-consonant-final e pattern, such as the ice in the word price. Also included is a vowel-consonant-consonant-final e pattern such as the ange in the word change.
Y	the letter, y, as the only vowel in a syllable.
non VV	the simple open or closed syllable in a word which also contains a syllable with VV. An example is the con in the word contain.
non VCE or non VCCE	the simple open or closed syllable in a word which also contains a syllable with one of the VCE patterns. An example is the pur in the words, purpose, or ex in exchange.
non y	the simple open or closed syllable in a word which also contains a syllable with the letter, y, as the only vowel. An example is the cher in the word, cherry.
Appropriate Rule	Whichever of the two rules in this study apply, i.e., either 1) the vowel in closed syllable rule, or 2) the vowel in open syllable rule.

Results--General Utility of Open and Closed Rules on Single Syllables

The new research reported herein provides the following information on the utility of the two rules, modified to apply to single syllables.

In the words of this study there were 19,846 simple open and closed syllables, 18.6% of which were open; 81.4% of which were closed.

Of the 3,691 open syllables, only 1,657 (or 44.9%) correctly could be pronounced using the appropriate rule.

Of the 16,155 closed syllables, 9,131 (or 56.5%) correctly could be pronounced using the appropriate rule.

It is clear that the utilities of both rules when applied to single syllables are quite different from, and considerably lower than, the utilities obtained when applied to single syllable words. The present research, as well as the previous research by Emans, Greif, and possibly Bieri, seems to indicate that the larger the list of words used, and the more removed from early elementary reading vocabulary lists, the lower the utility of the two rules.

A Problem With Some Syllables

Included in the words used in this study there were 228 words in which one syllable was one of the following: dle, ble, ple, kle, fle, gle, tle, zle, cle, le, and dl. Most of these (215) were in the list of words made of combinations of simple open and/or closed syllables. While they do involve a final silent e, they do not have the VCE or VCCE pattern. No vowel or vowel sound is involved so they wouldn't be syllables at all according to the IRA dictionary definition. In actual effect, they are a consonant digraph syllable pronounced as a consonant blend, as the syllable, dl, in the word dirn/dl. Children see them as open syllables, and I classified them as open syllables. As such, none of them conform to the rule, and as a consequence that way of classifying them lowered the utility of the vowel in open syllable rule as applied to single syllables, to 44.9%. Eliminating them entirely

would increase the utility less than 3% (to 47.7%), which, at that level, is of little consequence anyway.

Pronouncing Two Syllable Words

A general way to determine the utility of these two rules in pronouncing two syllable words would be to multiply the % of utility for the one type of syllable by that of the other, since there are two partial chances to be correct or incorrect, for example:

In a word such as:		The possibility of correct pronunciation is:
con/tent	(closed/closed) (56.5% x 56.5%)	31.9%
pro/long	(open/closed) (44.9% x 56.5%)	25.3%
so/lo	(open/open) (44.9% x 44.9%)	20.1%

That doesn't look very encouraging.

Another way is to look at the results according to each of the five categories of two syllable words, as previously listed.

Research Results, Category by Category

Category #1. Two syllable words, one syllable containing the vowel, y, the other a simple open or closed syllable.

1. There were 799 such words.

2. In 37% of them (296) words) the "non y" syllable correctly cannot be pronounced using the appropriate rule.

3. In 63% of them (503 words) the "non y" syllable correctly can be pronounced using the appropriate rule.

If you can't pronounce one syllable correctly, you can't pronounce the word correctly. The utility appears to be 63%, however, because the vowel, y, can be pronounced five different ways, namely long and short e, long and short i, and shwa, and there is no dependable way to tell which one to use, the chances at best, of getting that syllable correct are 20%. Accordingly, using those percentages (63% x 20%) the final chances of pronouncing both syllables correctly is 12.6%

Category #2. Two syllable words in which one syllable contains adjacent vowels, the other being a simple open or closed syllable.

1. There were 3,046 such words.

2. In 42.2% of these (1,439 words) the "non VV" syllable correctly cannot be pronounced, using the appropriate rule.

3. In 52.5% of them (1,607 words) the "non VV" syllable correctly can be pronounced using the appropriate rule.

Again, if you cannot pronounce one syllable in a word correctly, you cannot pronounce the word correctly.

The utility appears to be 52.5% but the chances of pronouncing the "VV" syllable in those words is, at best, 14.7% (Greif 1981 and 1984).

Therefore, the final chances of pronouncing these 3,046 words correctly is 9.3% using those percentages (63% x 14.7%).

Category #3. Two syllable words, on syllable containing a "VCE" pattern, the other being a simple open or closed syllable.

1. There were 2,341 such words.
2. In 42.5% of them (994 words) the "non VCE" syllable cannot be pronounced correctly using the appropriate rule.
3. In 57.5% of them (1,347 words) the "non VCE" syllable can be pronounced correctly using the appropriate rule.

The utility of the rule appears to be 57.5%. However, the chances that the "VCE" syllable can be pronounced correctly are 53% (Greif 1980). So the final chances of pronouncing both syllables of these 2,341 words is 30.5%., using both those percentages (57.5% x 53%).

Category #4. Two syllable words in which both syllables are simple open and/or closed syllables.

1. There were 6,830 such words.
2. In 17.3% of these (1,185 words) neither syllable can be pronounced correctly using the appropriate rule.
3. In 58.6% of them (4,006 words) only one syllable can be pronounced correctly using the appropriate rule.
4. In 24% of them (1,639 words) both syllables can be pronounced correctly using the appropriate rule.

Of these 6,830 words, the correct pronunciation can be obtained on only 1,639 of them using the rules of this study. The real utility is 24%.

Category #5. Two syllable words in which both syllables are some combination of the "VV," "VCE" pattern and/or the letter, y.

1. There were 1,046 of these words.

Obviously the two rules which are the subject of this study do not apply to these at all. However, it doesn't take much space to indicate that according to utilities obtained in previous research (Greif, 1980, 1981) the chances of correct pronunciation range from 2.1% to 28% depending upon which one of six combinations are in the word.

Other Important Factors Involved

It is extremely important to remember that these results can be obtained only if one can first divide each of the words into syllables with perfect accuracy. I used dictionary syllabification. The research by Clymer, Bailey, Emans, Dzama, and Bieri referred to herein, all report that the syllabification rules most commonly taught are not dependable enough to be taught. My own research currently in progress indicates perhaps as low as 45% utility for one popular syllabification rule, and 35% for another. Any errors in syllabification would reduce the already woefully low utility of the two vowels in open and closed rules.

It is also important to be aware that, in some words, whether or not the syllable is accented makes considerable difference in the pronunciation of vowels in them. To involve accent, each of the rules would need to be worded in two versions, accented

closed, unaccented closed, and accented open, unaccented open.[1]

I hope it is obvious that a person wouldn't be applying the two rules which are the subject of this study to figure out pronunciations if he knew the pronunciation well enough to be sure where the accent is. But if he doesn't know where the accent is, it is not easy to figure out. The rules for determining accent range up to as high as 11 in number, depending on whom you ask, and they are a complicated set, and about the iffiest of all the rules we have. The most practical way to determine accent (with 100% accuracy too) is to use the dictionary. Once into the dictionary, one also has the only 100% accurate source of information on how to pronounce the vowels--and all other parts and the meaning of the word, as well.

I tried to make this as simple as I could. If you find it ponderous and confusing, think how much more so it is for elementary grade children, and these are only two of the rules we ask them to use.

Some Concluding Questions

What did they say is the reason why Johnny can't read?

Why do children's attitudes toward reading--and toward the teacher and school in general--deteriorate so seriously so rapidly from early first grade to late third grade?

Could this research provide a good portion of the answer?

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[1]With words of more than two syllables, there often is secondary accent which would need to be dealt with in still another version.

Concluding Statements

It is rather obvious, I think, that these two rules--the vowel in open syllables, and the vowel in closed syllables--should not be taught at all. Teaching such rules and requiring children to use them seems little short of educational violence, and perhaps, psychological and attitudinal violence as well.

We have spent monumental efforts and phenomenal amounts of money in the past 30 years defending phonic analytic approaches to reading, and developing mountainous amounts of phonic teaching programs and materials. If we had spent this same effort and money researching the utility of phonic rules and developing other ways to teach reading, we'd long since have had some sensible alternate ways to use.

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